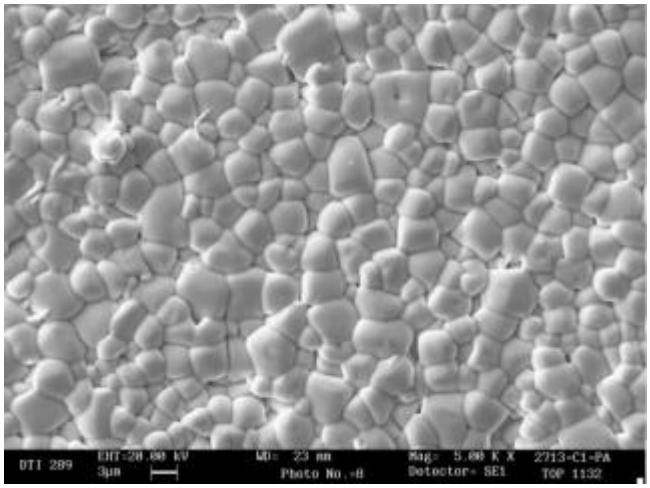
Ferroperm Piezoceramics

Your Partner in Smart Solutions

DATA SHEET

Soft PZT (Navy II)

Type Pz27



Microstructure of Pz27 at a magnification of 5000 times

01 Description

Pz27 is an all-round soft PZT material with good coupling factors, good charge coefficients, high Curie temperature, low mechanical quality factor and low temperature coefficients. It is more sensitive than Ferroperm Pz23, but have a slightly higher temperature dependence.

Pz27 can be used as a direct replacement for all other Navy II materials. Benefits include strongly improved ageing rates, and extremely stable performance from orders ranging over several years.

Repeatable performance

The main focus through our entire production process is to provide materials and components with the highest possible reproducibility of properties and parameters and to obtain the lowest aging rates in the industry.

Our materials have a variation of ±5% for all parameters. This reduces the requirements for impedance matching, frequency tuning and dimensioning of the housing meaning fewer rejects and lower costs.

Customised solutions

We have more than 60 years of experience in the production of advanced piezoelectric ceramics. Our team has extensive expertise in customising designs to match the customer's needs.

Please contact us to discuss your requirements in further detail.

02 Key features and benefits

- Lowest batch to batch variation in the industry
- Stable material with consistent performance
- Customised or standard designs

- Low temperature coefficients
- Low ageing rates
- High Curie temperature
- Low mechanical quality factor

03 Applications

- Shear-type accelerometers
- Compression mode accelerometers
- Medical and industrial flow meters
- Combined underwater acoustics transducers (transmitter/receiver)
- Combined NDT transducers (transmitter/receiver)

04 Contact

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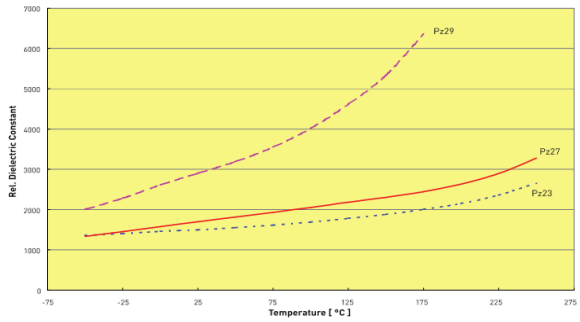
Soft relaxor type PZT, Type Pz27

05 Material properties

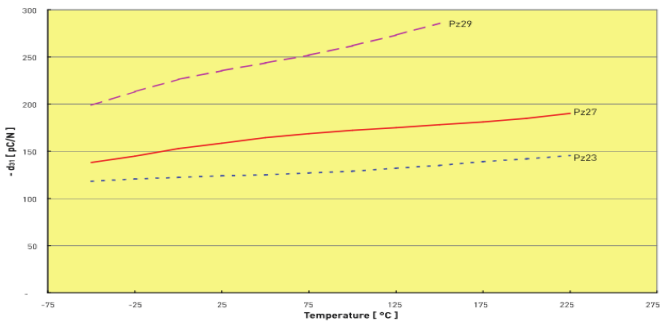
Electrical	Symbol	Pz27
Relative dielectric permittivity at 1 kHz	K_{33T}	1800
Dielectric dissipation factor at 1 kHz	tanδ	17 x 10^{-3}
Curie temperature	T_C >	350 °C
Recommended working range	<	250 °C
Electromechanical		
Coupling factors	K_p	0.59
	K_t	0.47
	K_{33}	0.70
Piezoelectric charge coefficient	d_{33}	440 pC/N
	d_{15}	500 pC/N
Mechanical		
Mechanical Quality Factor	$Q_{m,t}$	80
Density	ρ	7.70 g/cm3

Note: Due to continuous process improvement, specifications are subject to change without notice.
Please be aware that extreme dimensions and geometries can lead to exaggeration in tolerances in all materials.

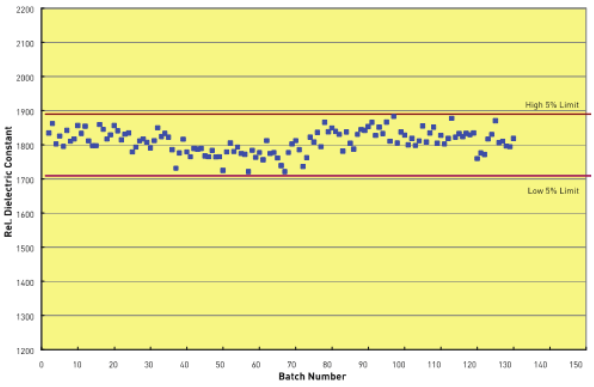
06 Technical performance



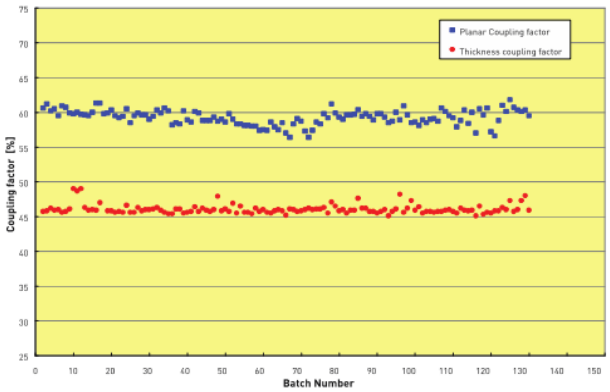
Temperature dependence of the free dielectric constant of Pz27 in comparison with other soft PZT materials from Ferroperm.



Temperature dependence of the piezoelectric charge coefficient, d31, for Pz27 in comparison with other soft PZT materials from Ferroperm.



Free dielectric constant of Pz27 standard discs produced for approval of every new batch. Each point represents a new batch of 20 – 150 kg. The illustrated time-period is from 1996 to Nov 2001. Extremely small variations over time is observed, and excellent stability can therefore be obtained.



Piezoelectric coupling constants for Pz27 standard discs produced for approval of every new batch. Each point represents a new batch of 20 – 150 kg. The illustrated time-period is from 1996 to Nov 2001. Extremely small variations over time is observed, and excellent stability can therefore be obtained.